FIG.1

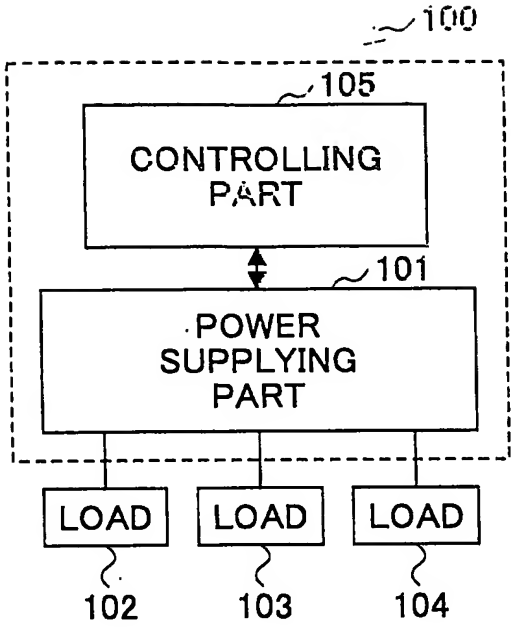

100
105
CONTROLLING PART
101
POWER SUPPLYING PART
LOAD
LOAD
LOAD
102
103
104

FIG.2

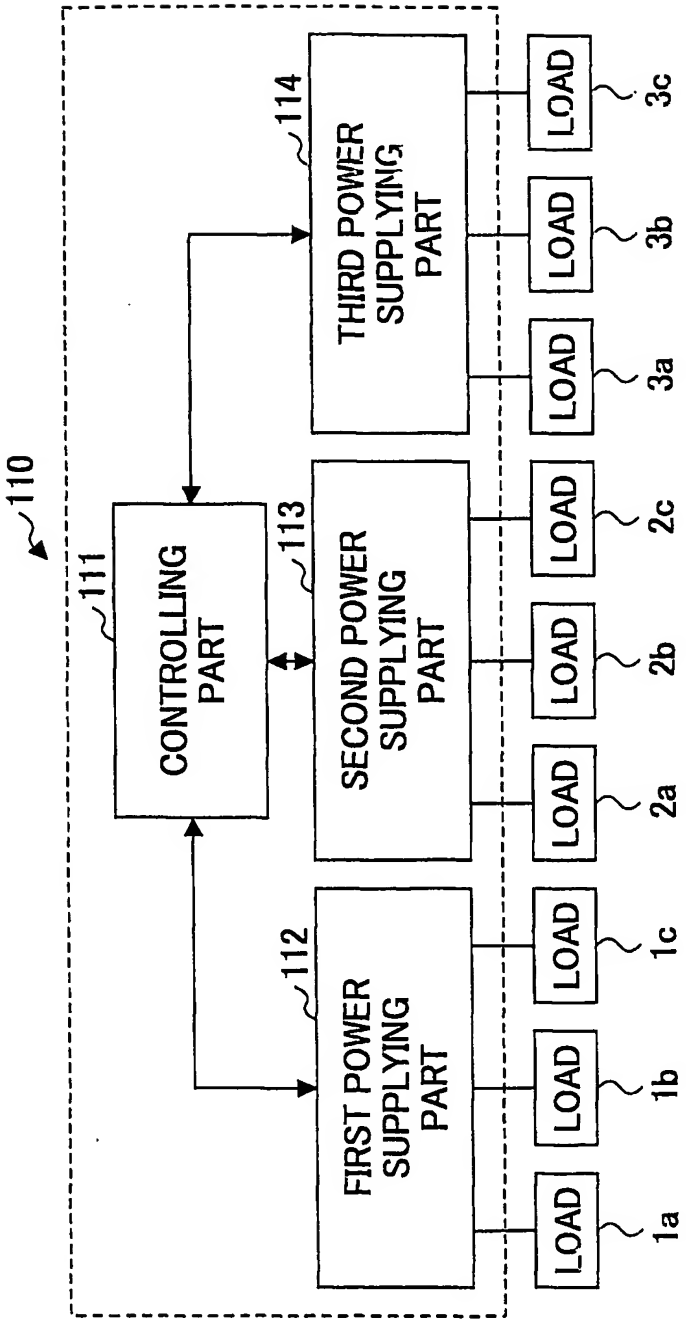

110
111
CONTROLLING PART
112
FIRST POWER SUPPLYING PART
113
SECOND POWER SUPPLYING PART
114
THIRD POWER SUPPLYING PART
LOAD
1a
1b
1c
2a
2b
2c
3a
3b
3c

FIG.3

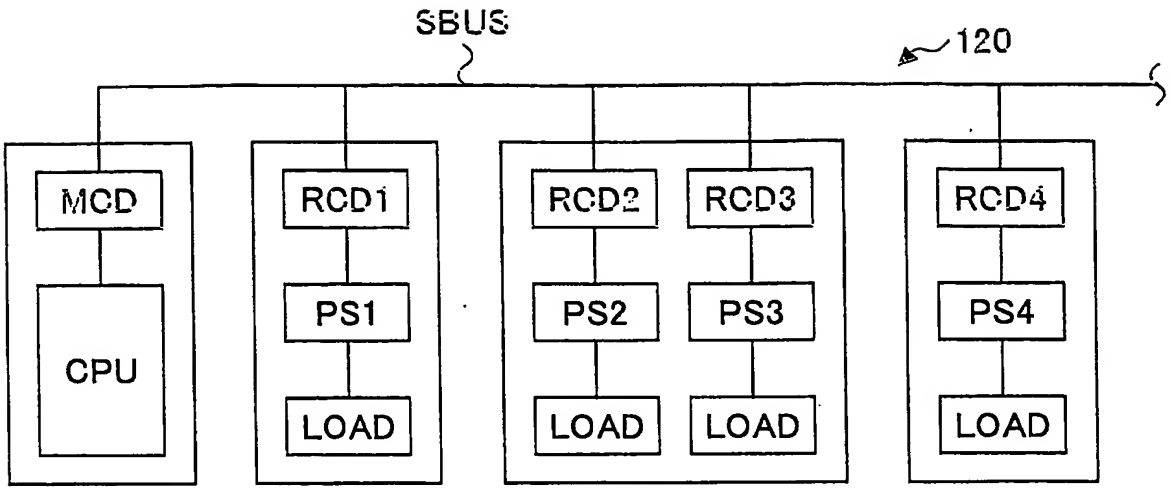

SBUS
120
MCD
CPU
RCD1
PS1
LOAD
RCD2
RCD3
PS2
PS3
LOAD
LOAD
RCD4
PS4
LOAD

FIG.4

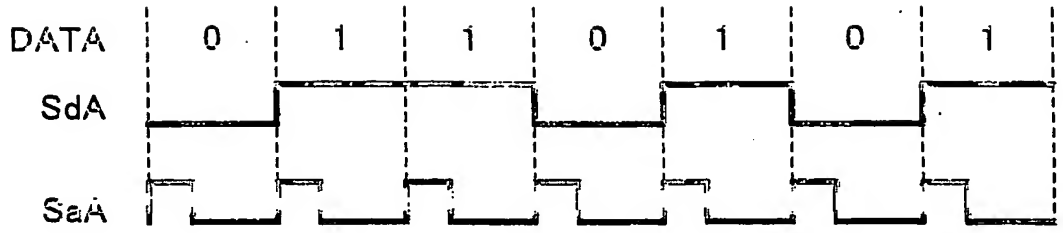


FIG.5

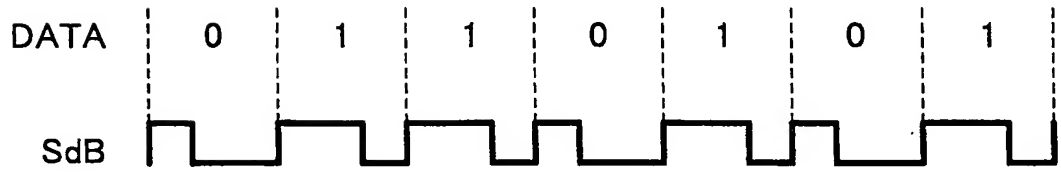


FIG.6

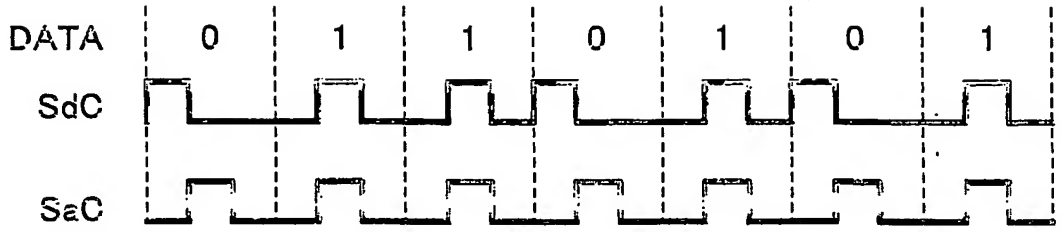


FIG.7

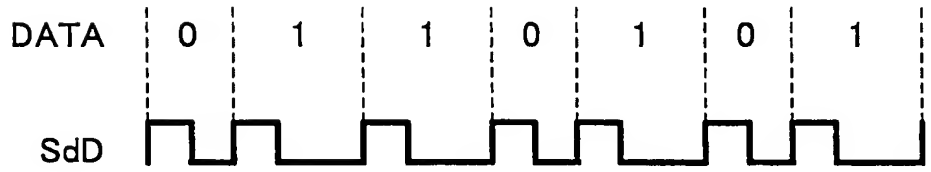


FIG.8

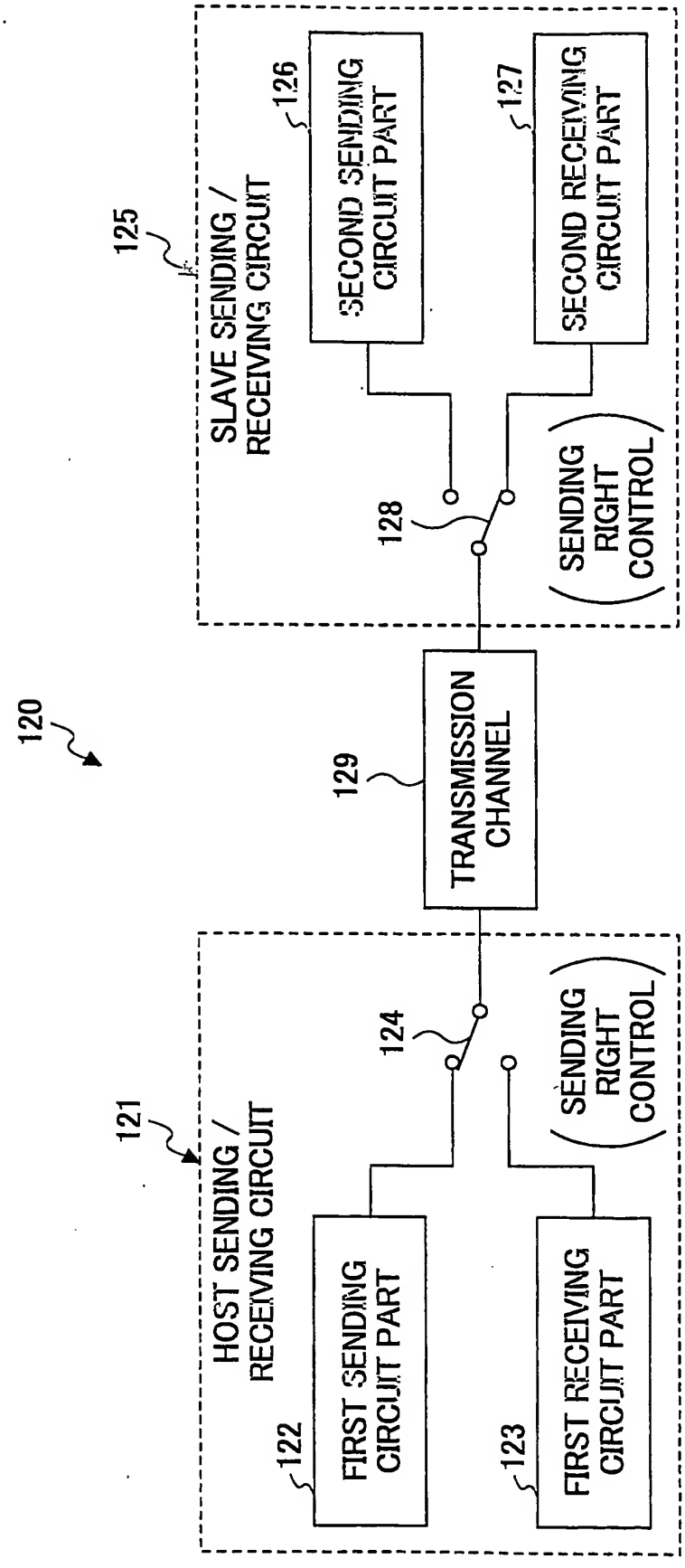

120
121
HOST SENDING / RECEIVING CIRCUIT
122
FIRST SENDING CIRCUIT PART
123
FIRST RECEIVING CIRCUIT PART
124
SENDING RIGHT CONTROL
129
TRANSMISSION CHANNEL
125
SLAVE SENDING / RECEIVING CIRCUIT
126
SECOND SENDING CIRCUIT PART
127
SECOND RECEIVING CIRCUIT PART
128
SENDING RIGHT CONTROL

FIG.9

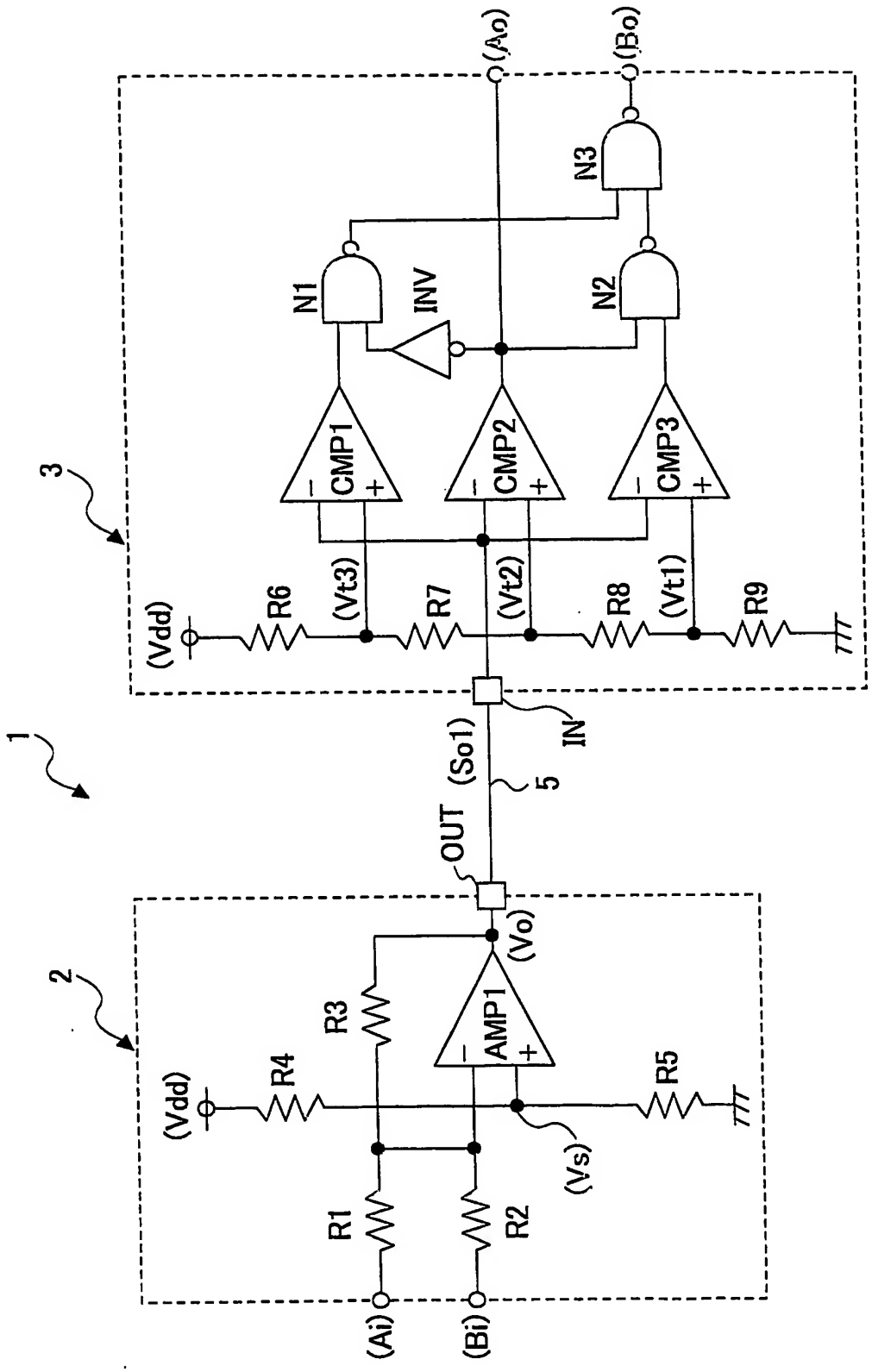

1
2
3
5
(Ai)
(Bi)
(Ao)
(Bo)
(Vdd)
R1
R2
R3
R4
R5
R6
R7
R8
R9
AMP1
(Vo)
(Vs)
OUT
(So1)
IN
CMP1
CMP2
CMP3
(Vt3)
(Vt2)
(Vt1)
N1
N2
N3
INV

FIG.10

STATE	Ai(V)	Bi(V)	Vo(V)
M1	6	6	0(=V1)
M2	6	0	2(=V2)
M3	0	6	4(=V3)
M4	0	0	6(=V4)

FIG.11

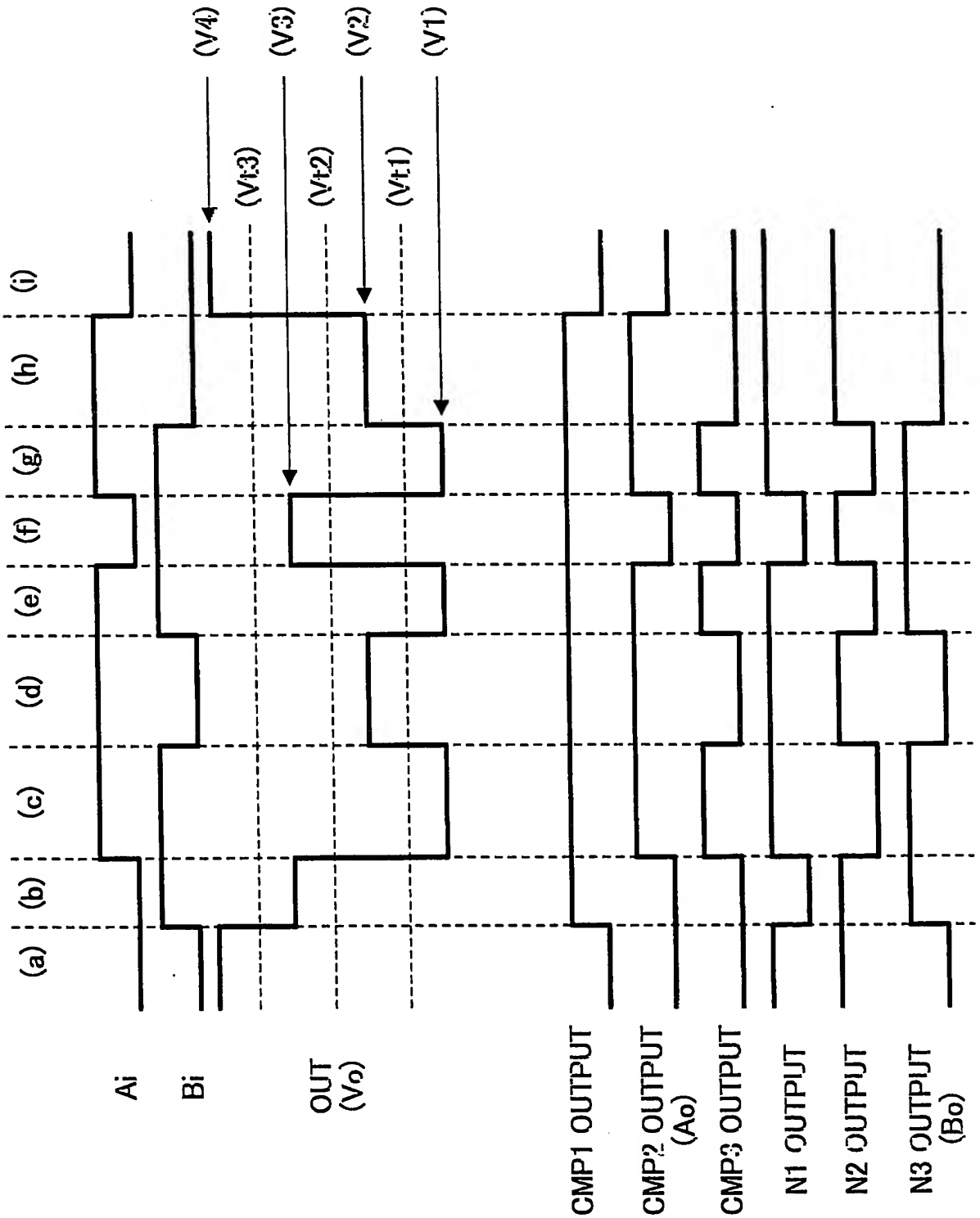

(V4)
(V3)
(V2)
(V1)
(Vt3)
(Vt2)
(Vt1)
(i)
(h)
(g)
(f)
(e)
(d)
(c)
(b)
(a)
Ai
Bi
OUT (Vo)
CMP1 OUTPUT
CMP2 OUTPUT (Ao)
CMP3 OUTPUT
N1 OUTPUT
N2 OUTPUT
N3 OUTPUT (Bo)

FIG.12

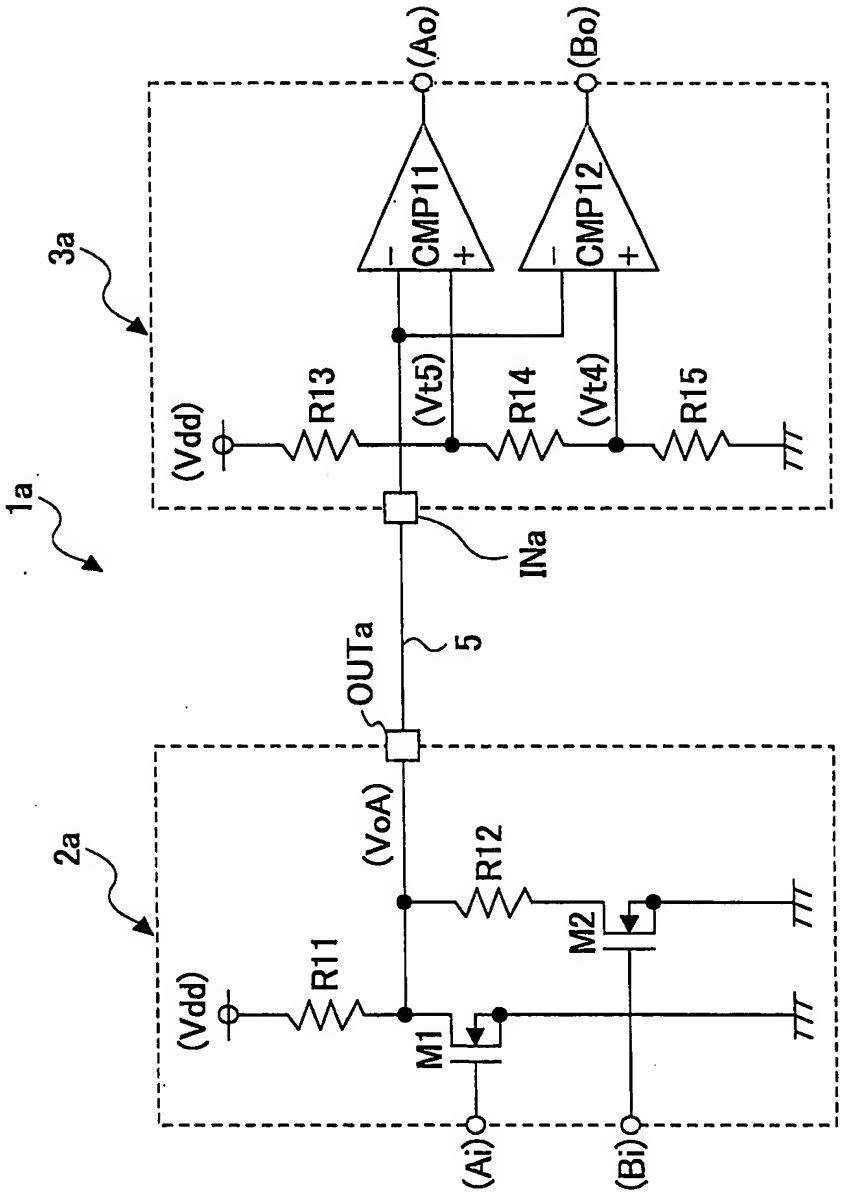

(Ao)
(Bo)
CMP11
CMP12
3a
(Vdd)
R13
(Vt5)
R14
(Vt4)
R15
1a
INa
5
OUTa
2a
(VoA)
R12
M2
R11
M1
(Ai)
(Bi)

FIG.13

STATE	Ai(V)	Bi(V)	VoA(V)
M4a	0	0	4(=V3a)
M3a	0	4	2(=V2a)
M2a	4	0	0(=V1a)
M1a	4	4	0(=V1a)

FIG.14

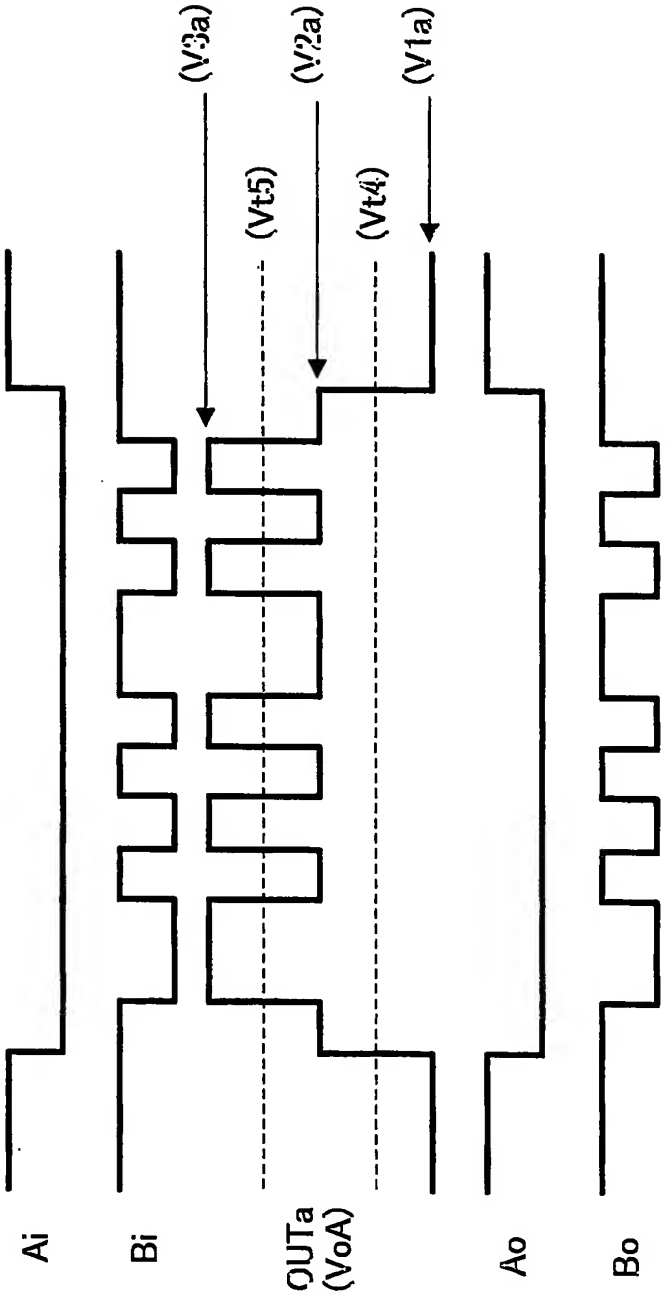


FIG.15

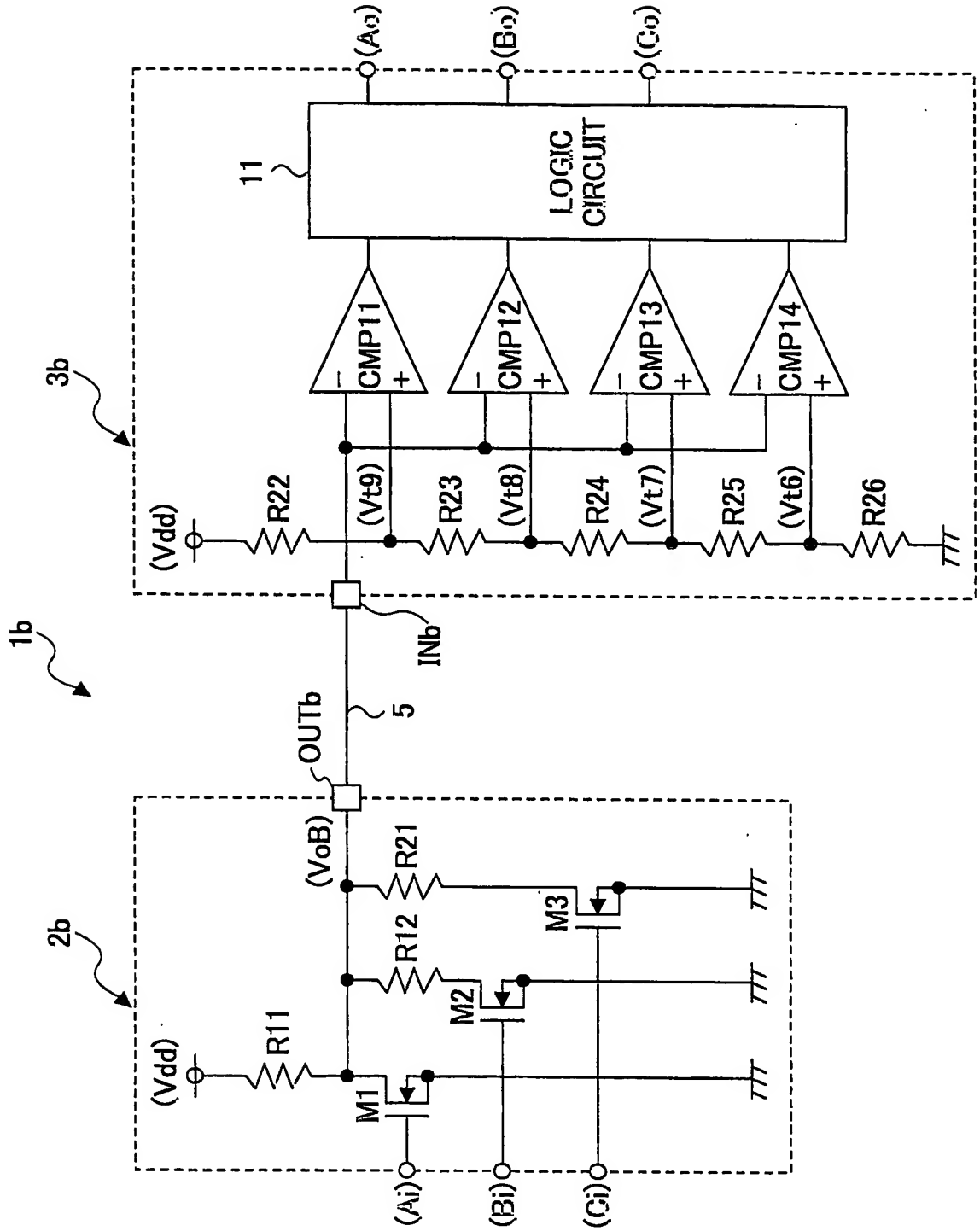

(Ao)
(Bo)
(Co)
11
LOGIC CIRCUIT
CMP11
CMP12
CMP13
CMP14
3b
(Vdd)
R22
(Vt9)
R23
(Vt8)
R24
(Vt7)
R25
(Vt6)
R26
INb
1b
OUTb
5
(VoB)
R21
R12
M3
M2
2b
(Vdd)
R11
M1
(Ai)
(Bi)
(Ci)

FIG.16

STATE	Ai(V)	Bi(V)	Ci(V)	VoB(V)
M5b	0	0	0	4(=V5b)
M4b	0	0	4	3(=V4b)
M3b	0	4	0	2.4(=V3b)
M2b	0	4	4	2(=V2b)
M1b	4	—	—	0(=V1b)

FIG.17

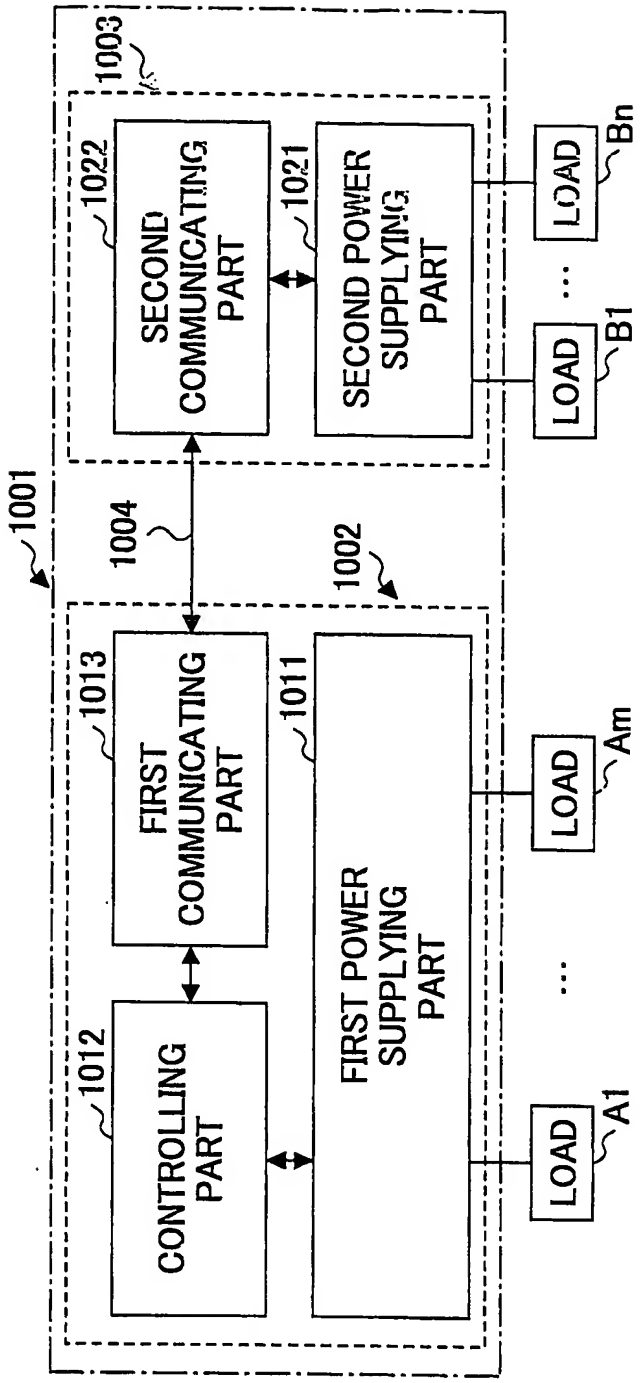

1001
1002
1003
1004
1011
1012
1013
1021
1022
FIRST POWER SUPPLYING PART
CONTROLLING PART
FIRST COMMUNICATING PART
SECOND POWER SUPPLYING PART
SECOND COMMUNICATING PART
LOAD
A1
Am
B1
Bn

FIG.18

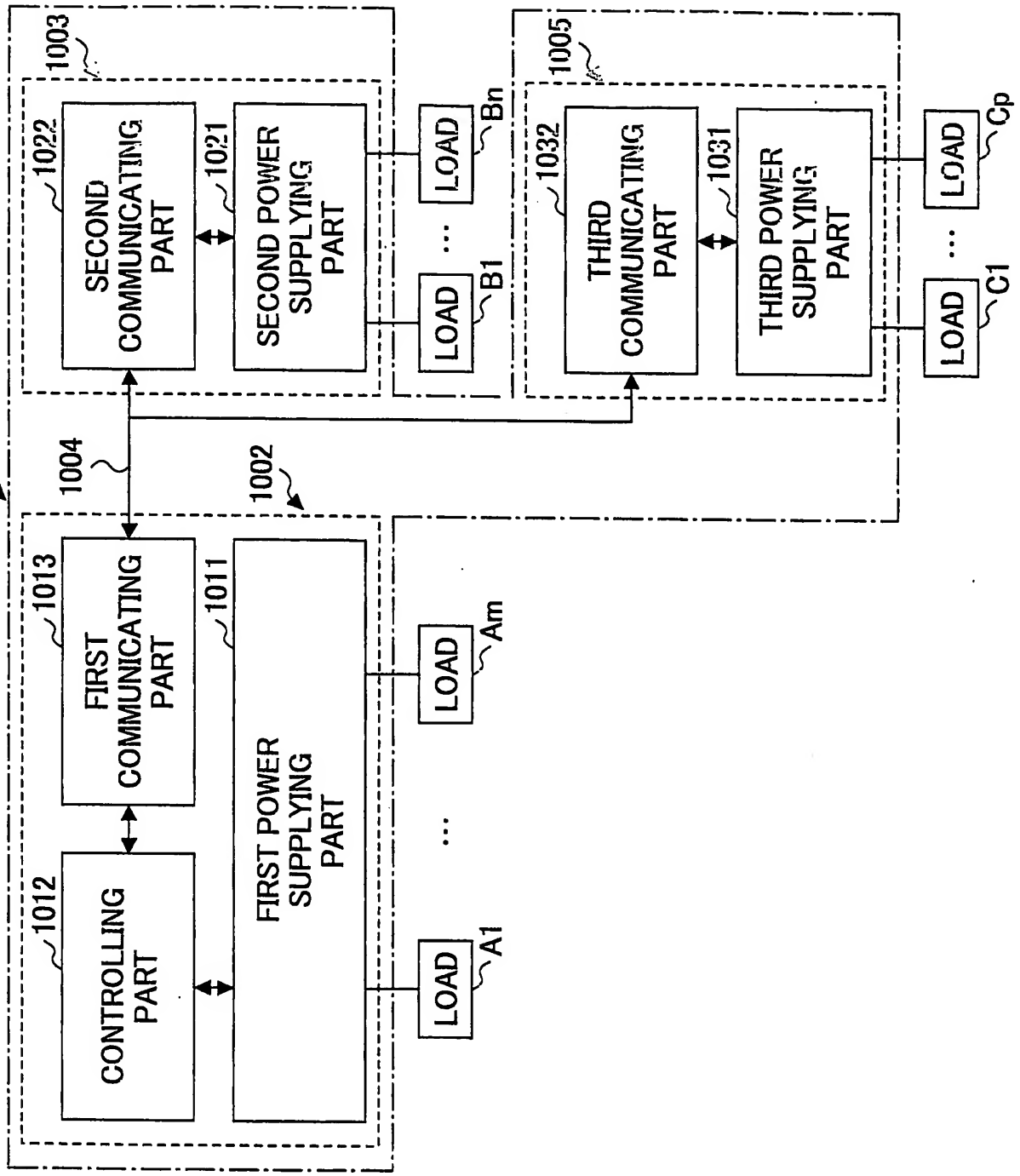

1101
1003
1005
1004
1002
1022
SECOND COMMUNICATING PART
1021
SECOND POWER SUPPLYING PART
1032
THIRD COMMUNICATING PART
1031
THIRD POWER SUPPLYING PART
1013
FIRST COMMUNICATING PART
1011
FIRST POWER SUPPLYING PART
1012
CONTROLLING PART
LOAD
Bn
B1
Cp
C1
Am
A1

FIG.19

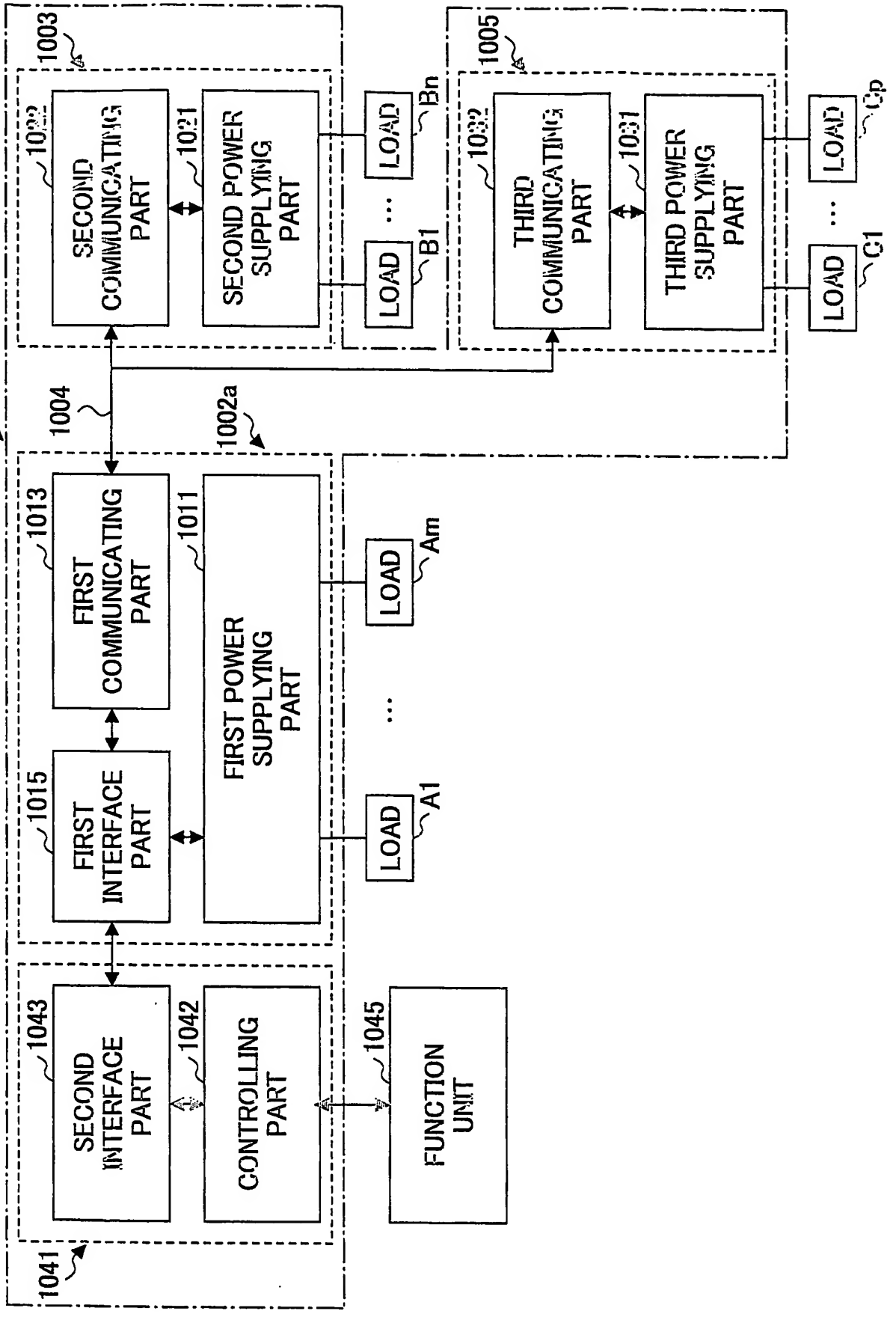

1001a
1003
1005
1004
1002a
1041
1043
1042
1045
1015
1013
1011
1021
1022
1031
1032
SECOND COMMUNICATING PART
SECOND POWER SUPPLYING PART
THIRD COMMUNICATING PART
THIRD POWER SUPPLYING PART
FIRST COMMUNICATING PART
FIRST POWER SUPPLYING PART
FIRST INTERFACE PART
SECOND INTERFACE PART
CONTROLLING PART
FUNCTION UNIT
LOAD
A1
Am
B1
Bn
C1
Cp

FIG.20

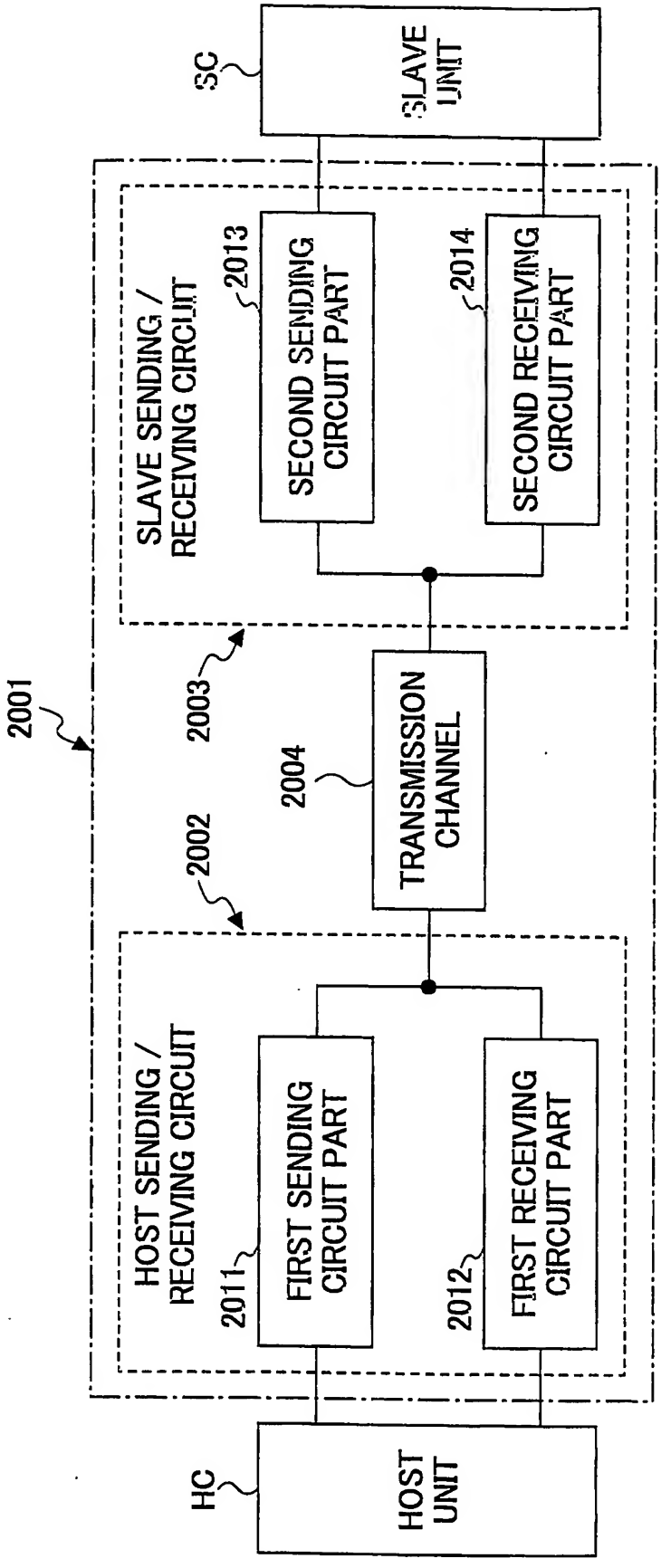

SC
SLAVE UNIT
SLAVE SENDING / RECEIVING CIRCUIT
2013
SECOND SENDING CIRCUIT PART
2014
SECOND RECEIVING CIRCUIT PART
2001
2003
2004
TRANSMISSION CHANNEL
2002
HOST SENDING / RECEIVING CIRCUIT
2011
FIRST SENDING CIRCUIT PART
2012
FIRST RECEIVING CIRCUIT PART
HC
HOST UNIT

FIG.21

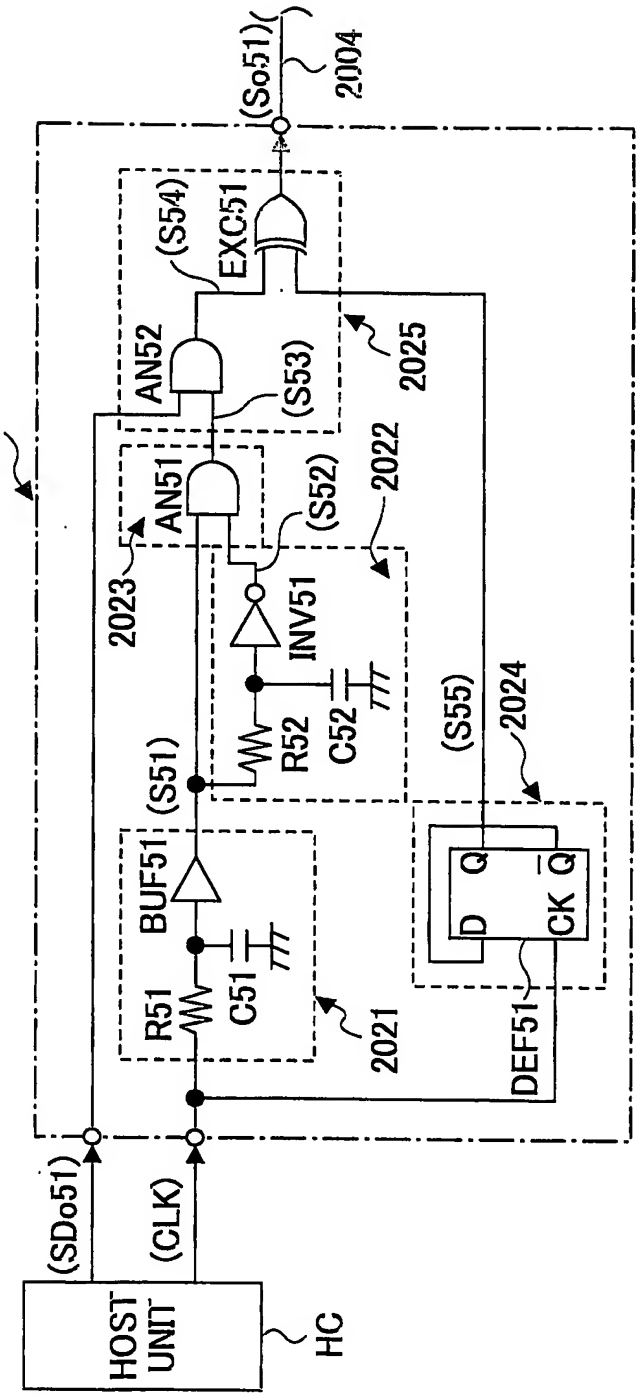

HC
HOST UNIT
(SDo51)
(CLK)
2011
2021
2022
2023
2024
2025
2004
(So51)
(S51)
(S52)
(S53)
(S54)
(S55)
BUF51
R51
C51
INV51
R52
C52
AN51
AN52
EXC51
DEF51
D
Q
CK
Q

FIG.22

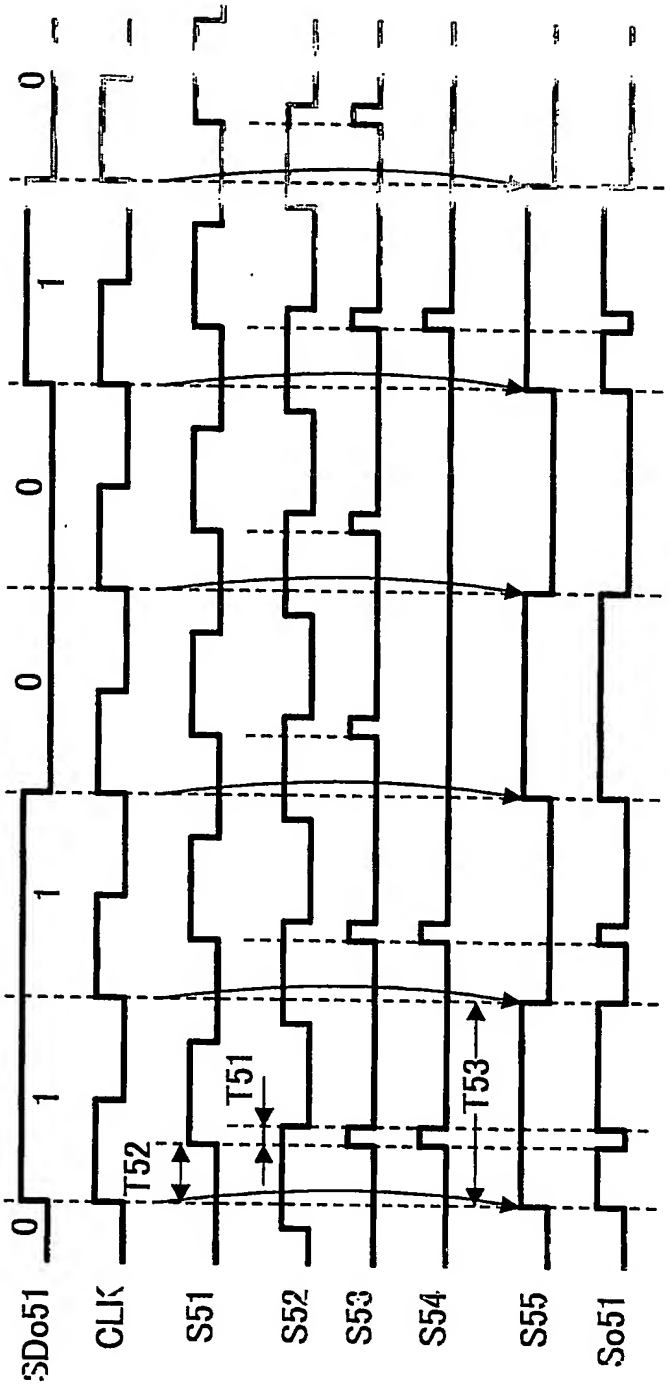


FIG.23

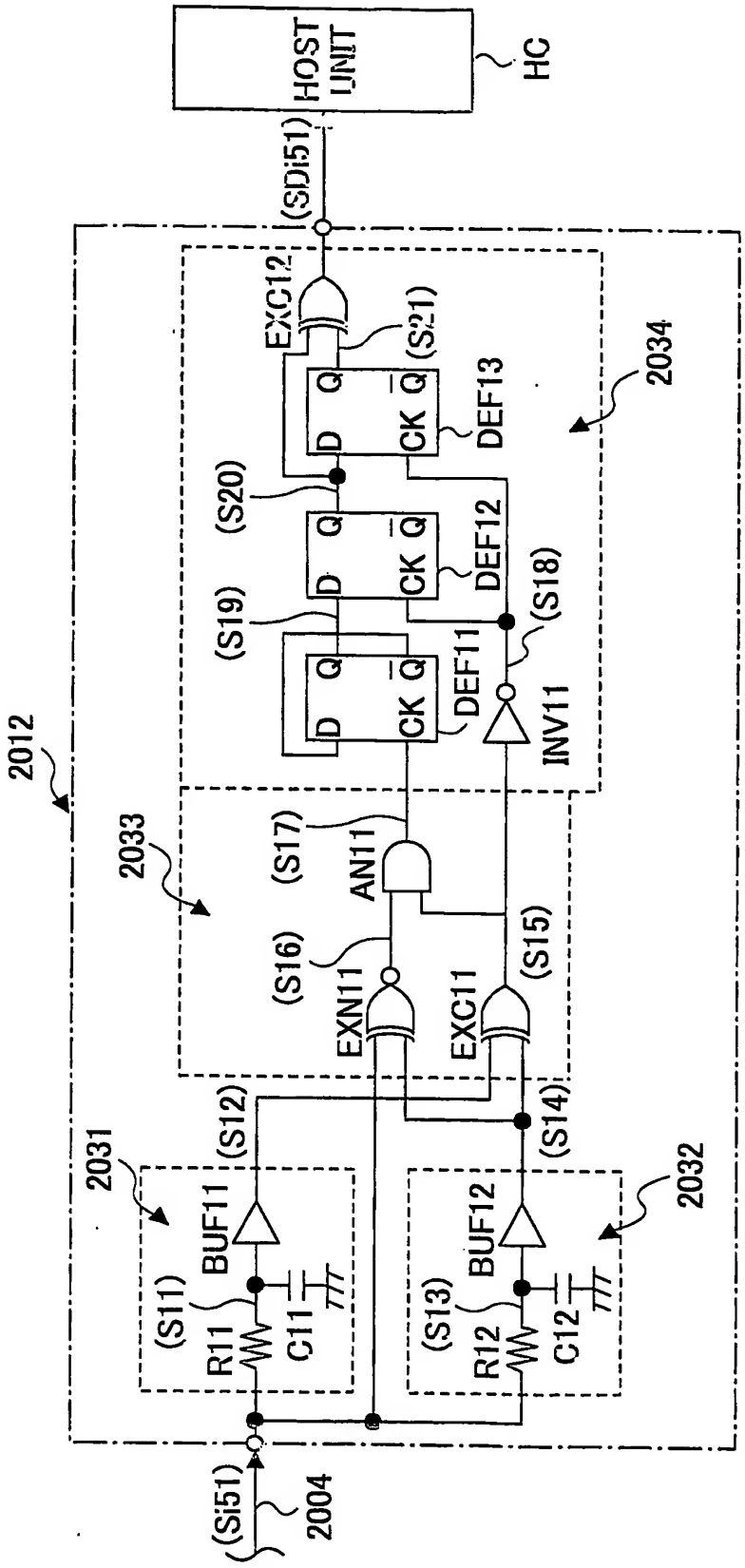

HOST UNIT
HC
(SDi51)
2012
2034
EXC12
(S21)
DEF13
(S20)
DEF12
(S19)
DEF11
(S18)
INV11
2033
(S17)
AN11
(S16)
EXN11
EXC11
(S15)
(S14)
2031
(S12)
BUF11
(S11)
R11
C11
2032
BUF12
(S13)
R12
C12
(Si51)
2004

FIG.24

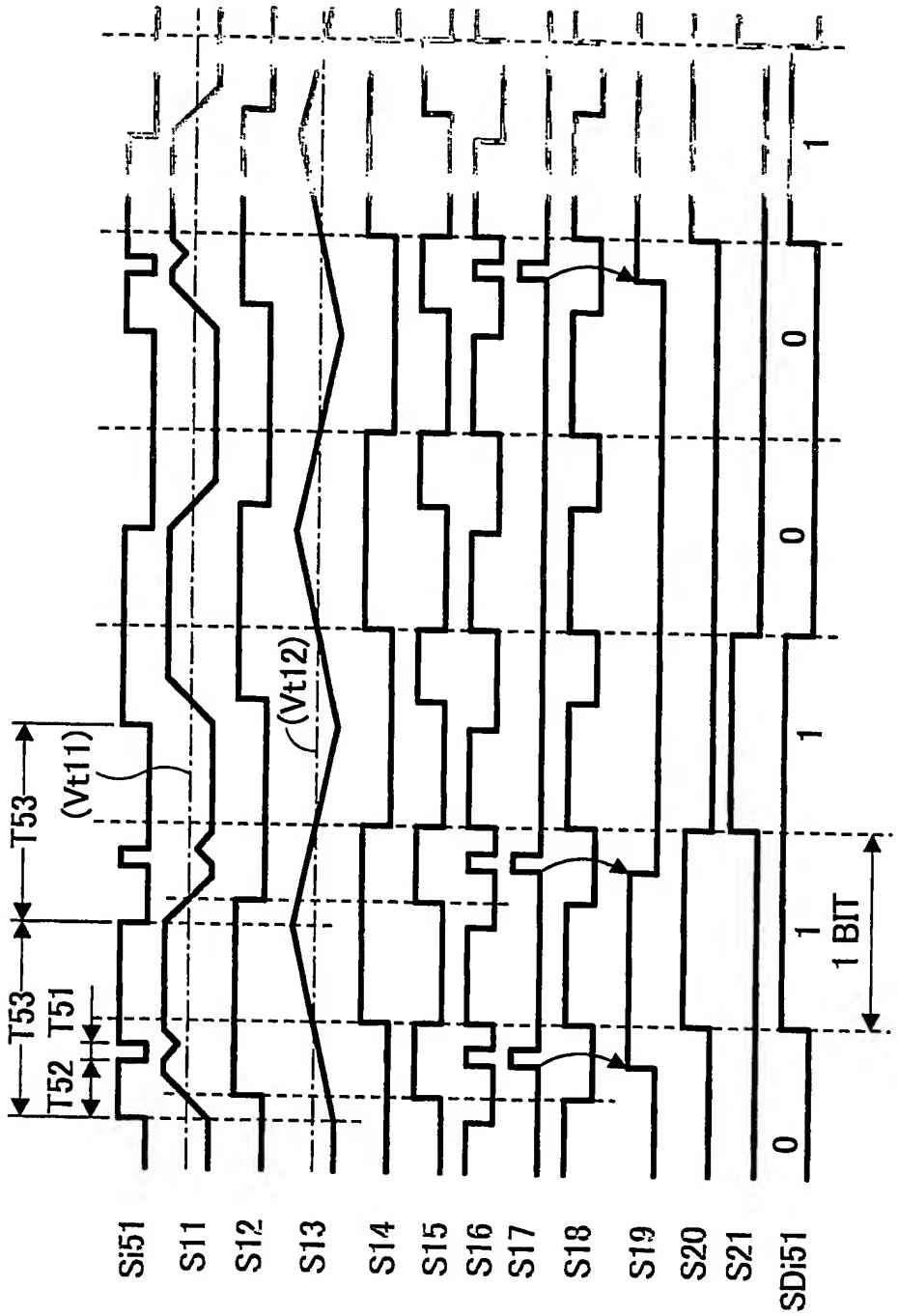

Si51
S11
S12
S13
S14
S15
S16
S17
S18
S19
S20
S21
SDi51
T52
T51
T53
T53
(Vt11)
(Vt12)
1 BIT
1
1
0
0
0
1

FIG.25

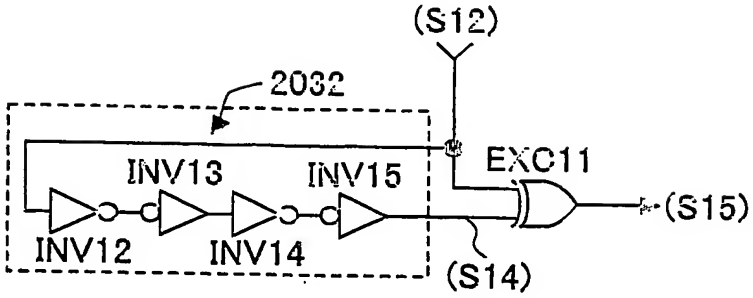


FIG.26

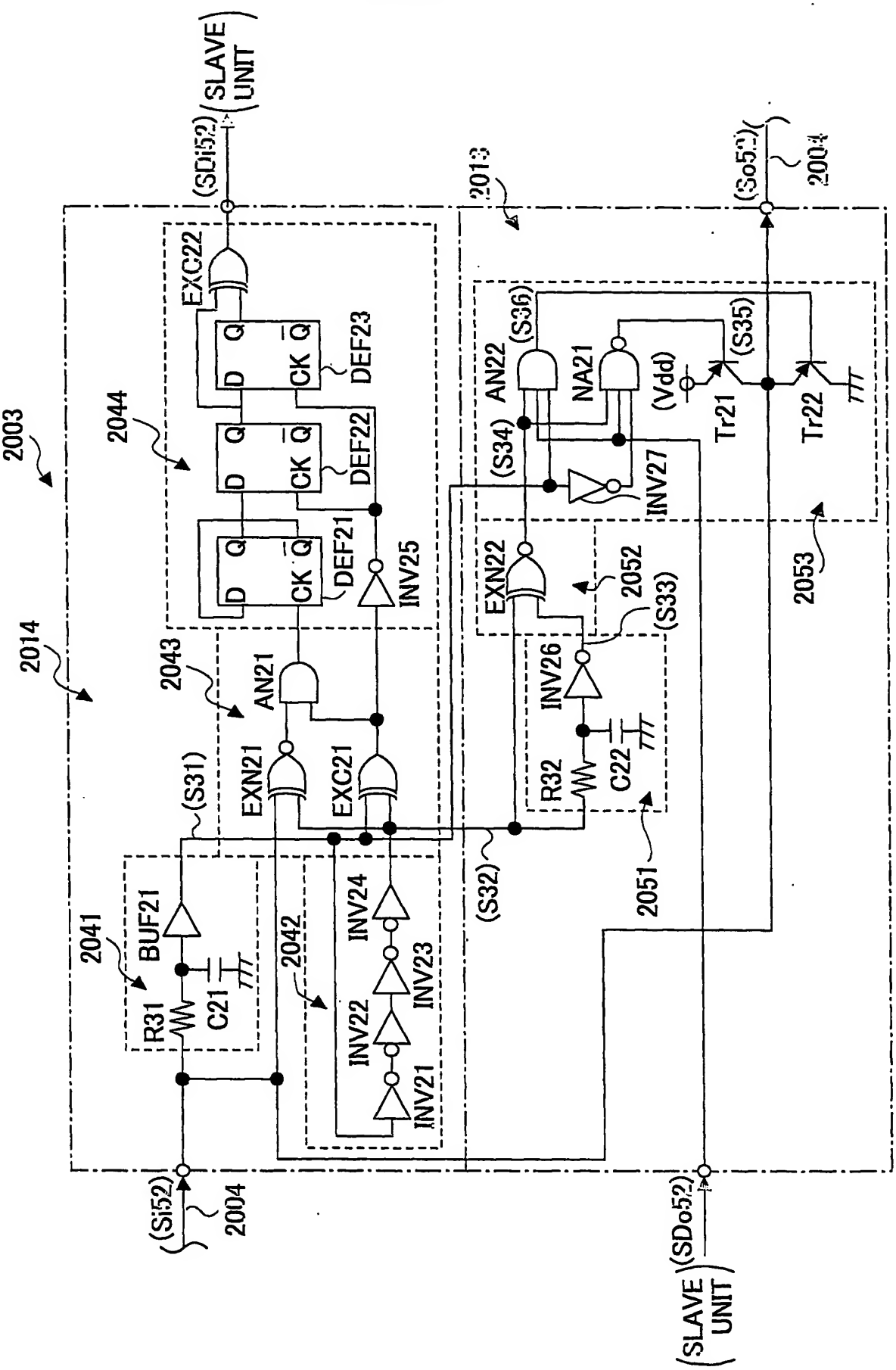
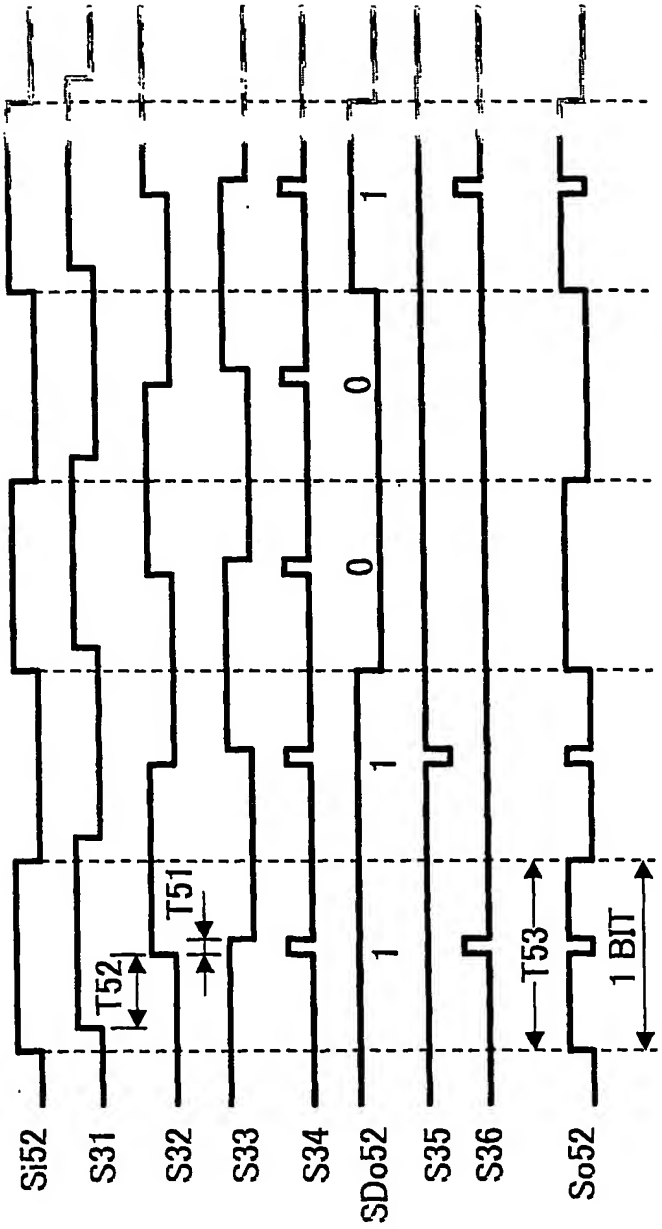

(SDi52)
(SLAVE UNIT)
2003
2044
2014
2043
2041
2042
2013
2004
2053
2052
2051
EXC22
DEF23
DEF22
DEF21
INV25
AN21
EXN21
EXC21
BUF21
R31
C21
INV24
INV23
INV22
INV21
(S31)
(S32)
(S33)
(S34)
(S35)
(S36)
EXN22
INV26
R32
C22
AN22
NA21
(Vdd)
INV27
Tr21
Tr22
(Si52)
(SDo52)
(SLAVE UNIT)

FIG.27


Si52
S31
S32
S33
S34
SDo52
S35
S36
So52
T52
T51
T53
1 BIT
1
0
0
1
1
1

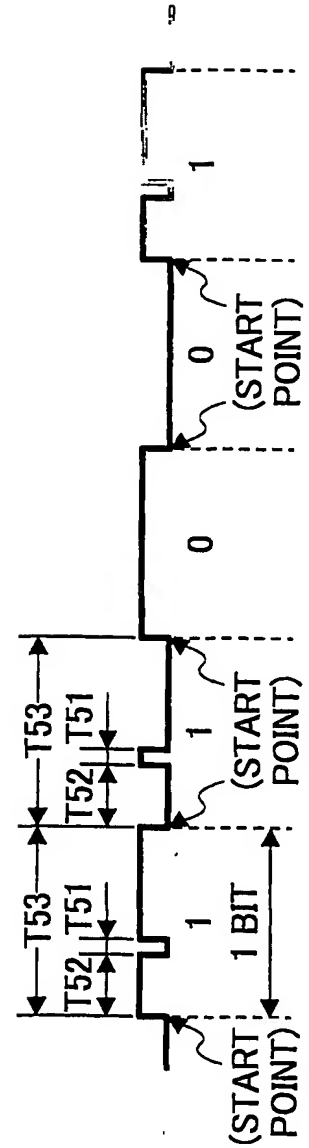


FIG.28A

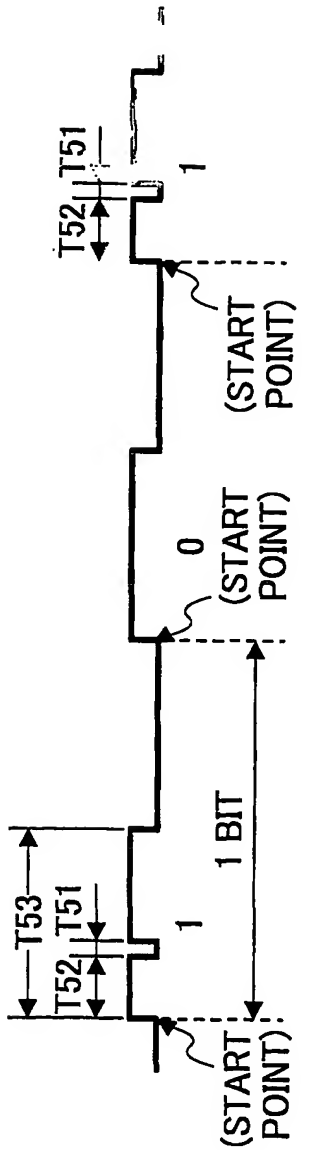


FIG.28B

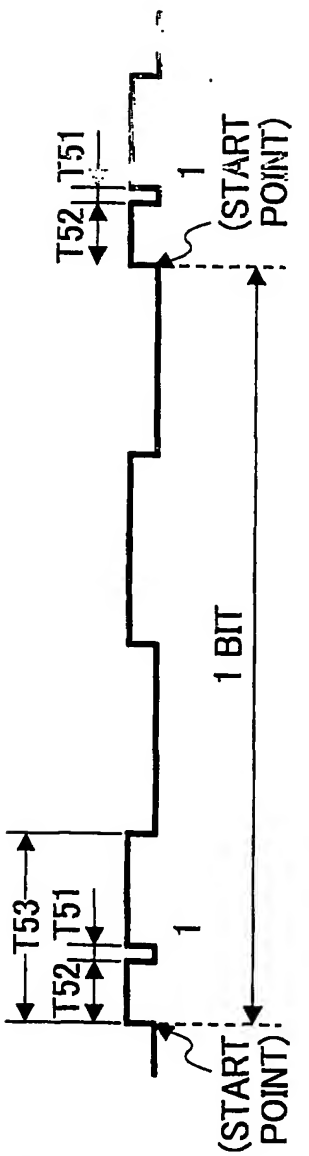


FIG.28C

FIG.29

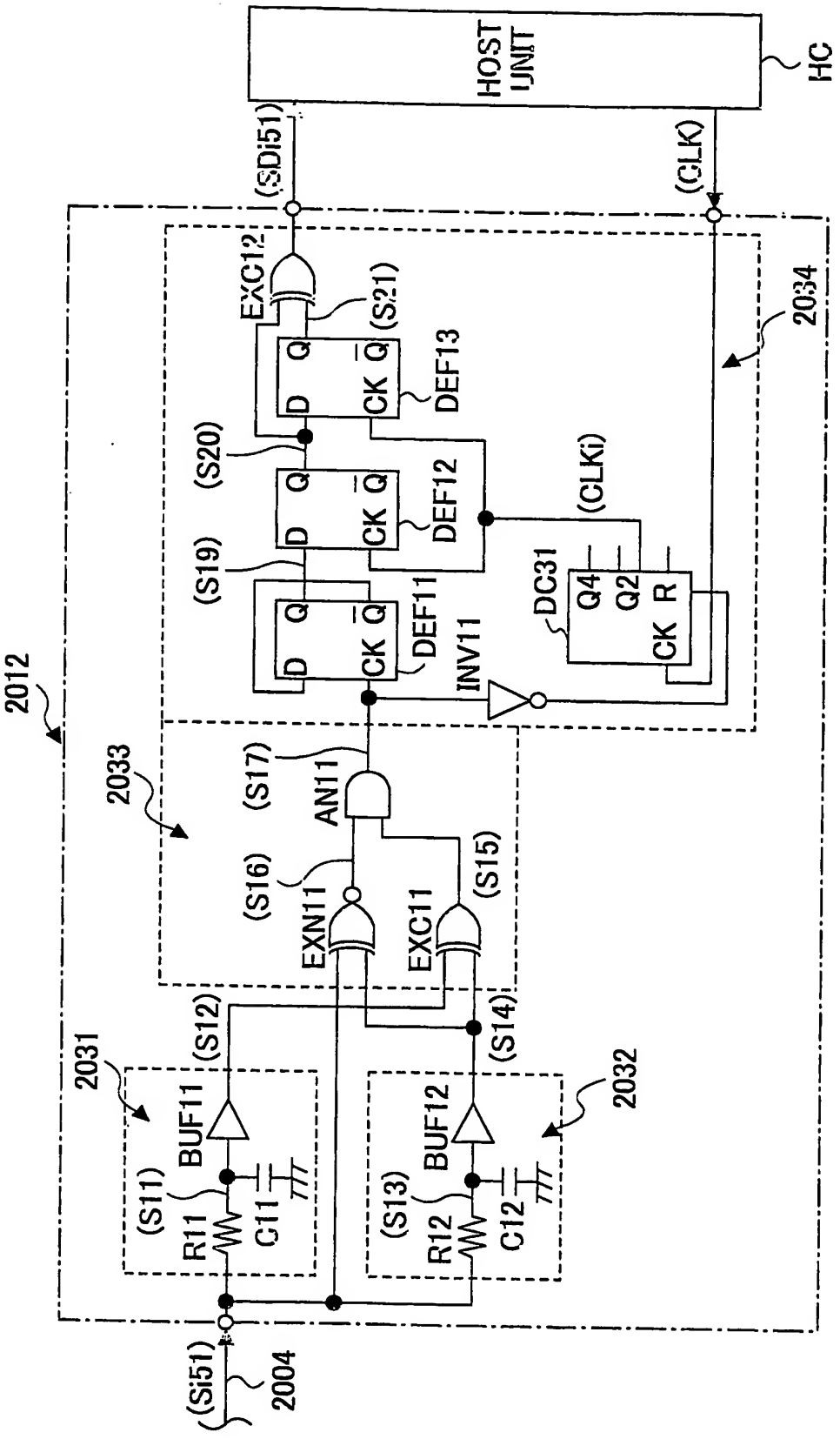

HOST UNIT
HC
(SDi51)
(CLK)
2012
2034
2033
2031
2032
EXC12
(S21)
DEF13
(S20)
DEF12
(CLKi)
(S19)
DEF11
INV11
DC31
Q4
Q2
CK R
(S17)
AN11
(S16)
EXN11
EXC11
(S15)
(S14)
(S12)
BUF11
(S11)
R11
C11
BUF12
(S13)
R12
C12
(Si51)
2004

FIG.30

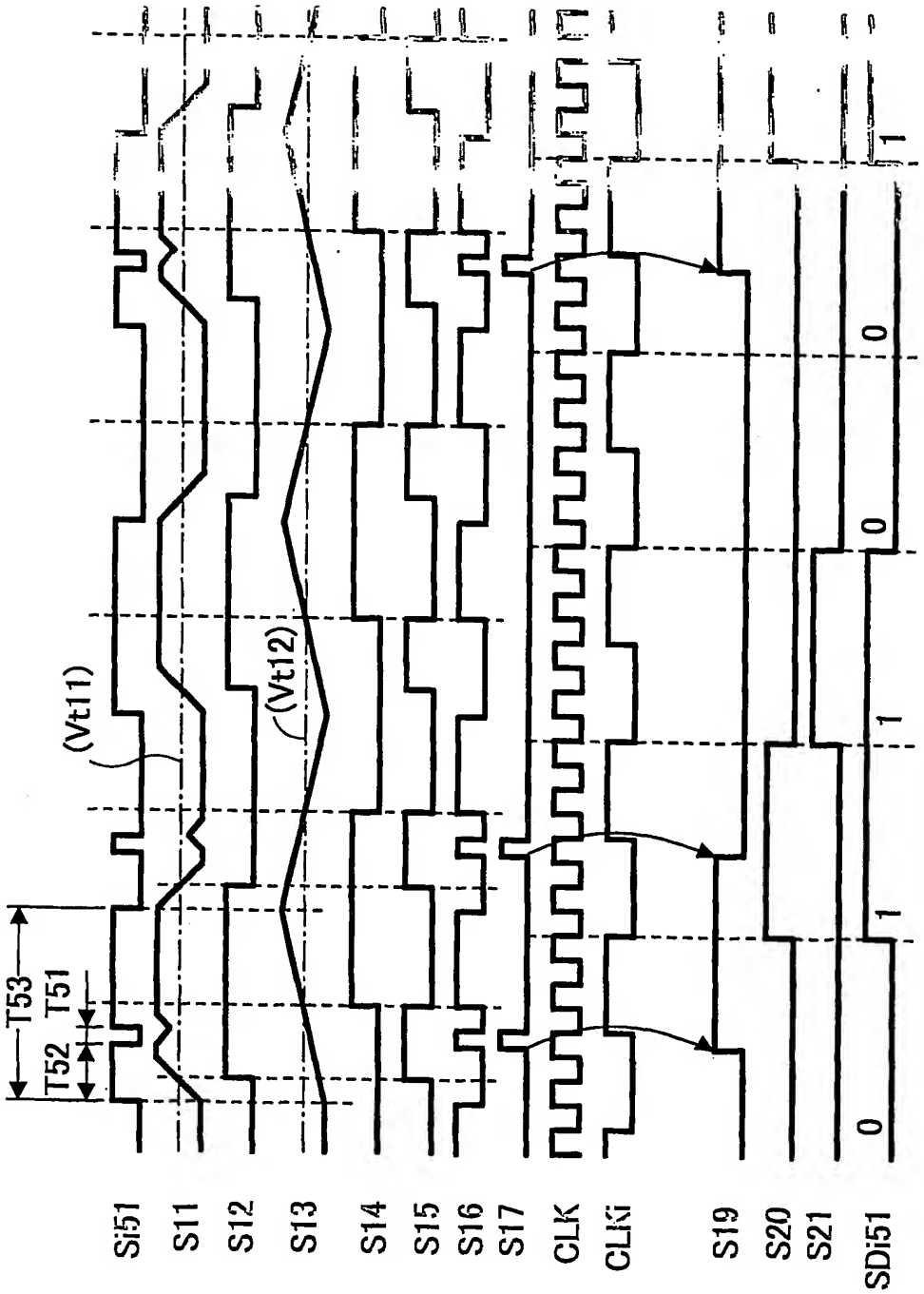
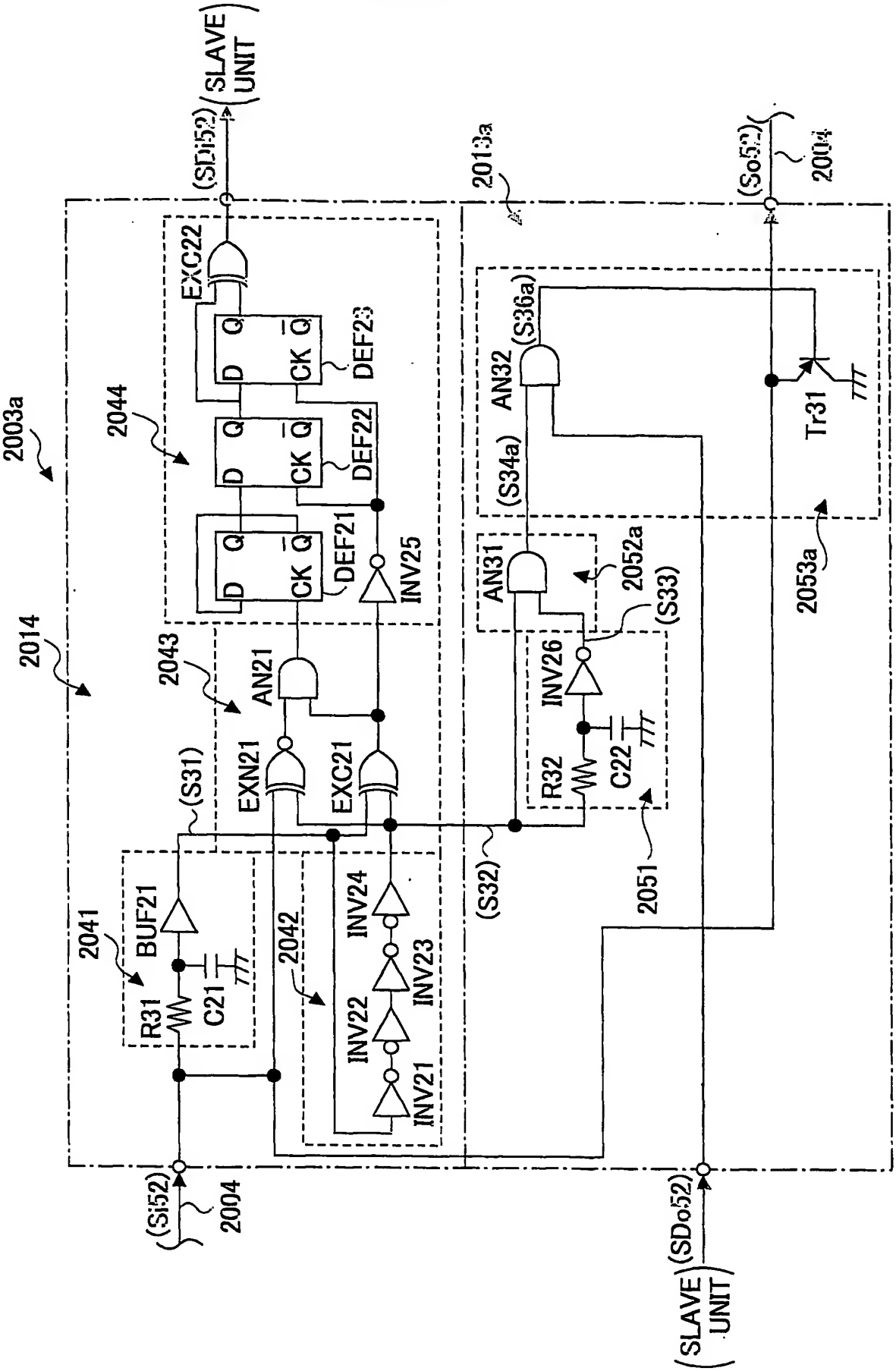

Si51
S11
S12
S13
S14
S15
S16
S17
CLK
CLKi
S19
S20
S21
SDi51
(Vt11)
(Vt12)
T53
T52
T51
1
0
0
1
1
0

FIG.31


(SDi52)
(SLAVE UNIT)
2003a
2044
EXC22
DEF23
DEF22
DEF21
INV25
2014
2043
AN21
EXN21
EXC21
(S31)
2041
BUF21
R31
C21
2042
INV24
INV23
INV22
INV21
(Si52)
2004
(S32)
2013a
(S36a)
AN32
(S34a)
AN31
2052a
(S33)
INV26
R32
C22
2051
2053a
Tr31
(So52)
2004
(SDo52)
(SLAVE UNIT)

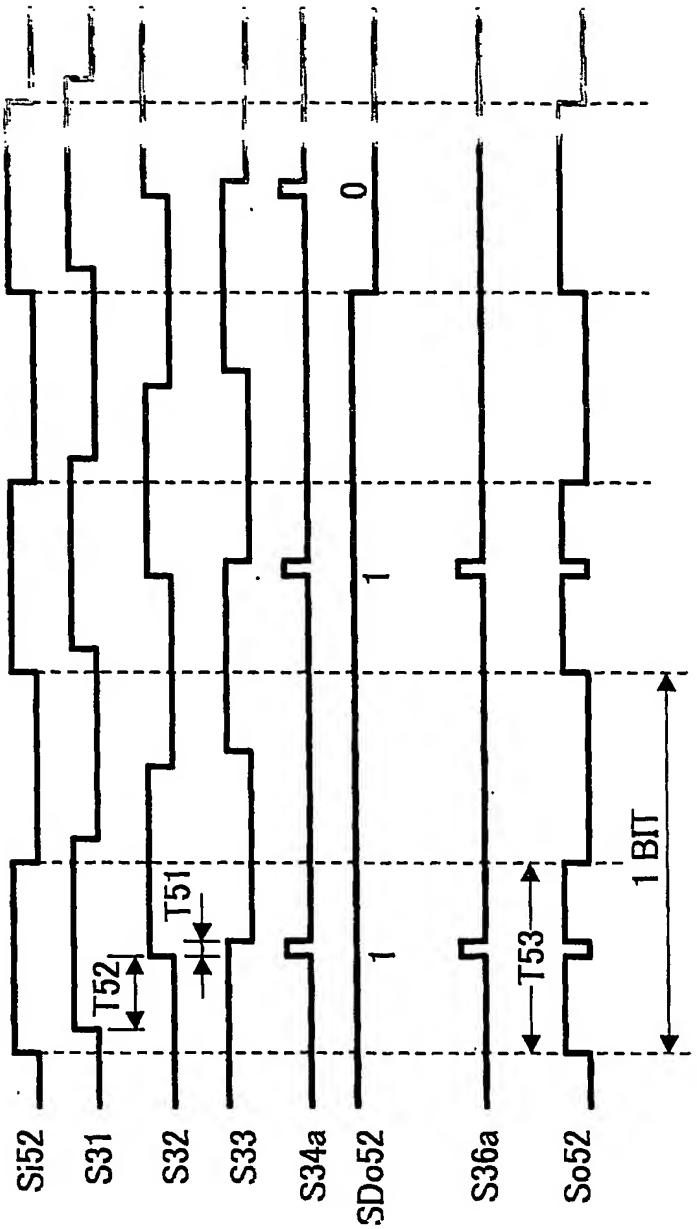



FIG.32